MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016

TSA2151 SYSTEM ADMINISTRATION AND MAINTENANCE

(All Sections / Groups)

17 OCTOBER 2015
9.00 A.M - 11.00 A.M
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 7 pages including cover page with 2 sections.

2. **SECTION A**: There are 20 multiple choices questions. Answer ALL questions.

3. **SECTION B**: There are 4 structured questions. Answer ANY THREE questions only.

4. For section A mark your answer in OMR sheet and for section B write all your answers CLEARLY in the Answer Booklet provided.

SECTION A: MULTIPLE CHOICES QUESTIONS (20 MARKS).
Answer ALL questions.

1. Identify the proper device for the third partition, on the second hard disk, on the first IDE controller on a PC system.
   A. /dev/hdb3
   B. /dev/hd1b3
   C. /dev/hdc1b3
   D. /dev/hdc1d2p3

2. What is the proper option to put in /etc/fstab to enable group quotas for a particular partition?
   A. groupquota
   B. grpquota
   C. groupquotas
   D. grpquotas

3. What permissions must a user have in order to run a shell script?
   A. read
   B. write
   C. execute
   D. browse on the directory

4. You are using quota on your system. How can you see disk quota details?
   A. repquota
   B. quota -l
   C. quota
   D. quotachech

5. What does the command mount -a do?
   A. It mounts the floppy disk for all users.
   B. It shows all mounted file systems.
   C. It opens /etc/fstab to edit.
   D. It mounts all file systems listed in /etc/fstab.

6. Which one of the following command will only find files that are in your PATH?
   A. locate
   B. slocate
   C. which
   D. Find

7. Which command shows the space which is used by files and directories?
   A. du
   B. df
   C. find
   D. ls

Continued.....

8. You are logged in as user tux1, but now you want to switch to user tux2 using tux2's environment. How would you do this?
   A. su tux2
   B. su -e tux2
   C. su - tux2
   D. su -m tux2

9. You enter the command date +%M. What does the output show you?
   A. the current year
   B. the current month
   C. the current hour
   D. the current minute

10. What is a reasonable command to uninstall a Debian package from your system?
   A. dpkg -Ra pkgname
   B. dpkg -R pkgname
   C. dpkg -r pkgname
   D. dpkg -ra pkgname

11. You have not run apt-get on a system for some time, but it has been run on the system before. What apt-get command would you run to download the latest list of packages, but not the packages themselves?
   A. apt-get build-dep
   B. apt-get mirror-select
   C. apt-get update
   D. apt-get upgrade

12. Which command will show you the contents of a gzip compressed tar archive?
   A. gzip archive.tgz | tar xvf -
   B. tar ztf archive.tgz
   C. gzip -d archive.tgz | tar tvf -
   D. tar cf archive.tgz

13. Which key do you press to switch to normal mode in vi?
   A. Alt
   B. Esc
   C. Ctrl
   D. Shift

14. Which runlevels should never be declared as the default runlevel?
   A. 0
   B. 3
   C. 4
   D. 5

Continued.....

15. While installing from source code you don't see the configuration script. What command can you run to compile the code?
    A. make configure
    B. install
    C. install makefile
    D. make

16. You installed a beta rpm package, but you are experiencing some problems with it. How can you remove this package?
    A. rpm -qe rpmname
    B. rpm -V --remove rpmname
    C. rpm -r rpmname
    D. rpm -ev rpmname

17. Which command will allow you to install the updated version?
    A. rpm -i gthumb-2.2.0.i386.rpm
    B. rpm -ivh gthumb-2.2.0.i386.rpm
    C. rpm -U gthumb-2.2.0.i3S6.rpm
    D. rpm -qu gthumb-2.2.0.i386.rpm

18. Which of the following GNU commands would be the most likely command you should use to find the system load average?
    A. top
    B. nice
    C. loadavg
    D. cpustat

19. In which file can you set the default runlevel?
    A. /etc/inittab
    B. /etc/runlevel
    C. /etc/init.d/runlevel
    D. /etc/init

20. Which of the following command is typically used to query installed debian packages?
    A. dpkg
    B. rpm
    C. apt-conf
    D. dselect

Continued.....

SECTION B: STRUCTURED QUESTIONS (30 MARKS).
Answer THREE (3) questions only.

Question 1

A. A system administrator (sysadmin) is a person who is responsible for the maintenance, configuration, and reliable operation of computer systems; especially multi-user computers, such as servers. List **FIVE** (5) "hard" skills required by system administrator.

[5 marks]

B. Your IT department wants to implement web based wiki system to document administration and maintenance task. Analyze and give recommendation on which operating system to use based on the operating system requirements and hardware availablity as shown in Table 1 below.

[2 marks]

Linux	FreeBSD	Available Hardware
SUSE Linux Enterprise Server (SLES) installation will require a minimum of 512 MiB RAM, 512 MiB Swap recommended 2 GiB available disk space (more recommended, 8.5 GiB for all patterns)	A FreeBSD installation will require a 486 or better processor, at least 24 MB of RAM, and at least 150 MB of free hard drive space for the most minimal installation. Specialized FreeBSD systems can run in as little as 128MB RAM while desktop systems should have at least 4 GB of RAM.	• Dell PowerEdge 500sc • 512 MB RAM • 20 Gigabyte of hard disk

Table 1: Operating system requirements and server specification

C. Creating users in Linux or UNIX system is a routine task for system administrators. Give a suitable Linux/UNIX command for user administrative task below:

[3 marks]

i) Add a new user called `leman`

ii) Create a user `leong` with a home directory `/data/projects`

iii) Remove a user `lavita` including users's home directory and files.

Continued.....

Question 2

A. A package manager is a collection of tools that provides a consistent method of installing, upgrading and removing software on Linux system.

i) Briefly describe TWO (2) most popular package managers with their distributions.

[4 marks]

ii) Give package management command to perform the tasks below:

a. Using RPM - Install `nano-2.2.0-1.i386.rpm` with verbose and print hash mark

[1 mark]

b. Using dpkg – Remove `nano-2.2.0-1.i386.deb` including configuration files

[1 mark]

B. ISPConfig 3 is an open source hosting control panel for Linux distros which is capable of managing multiple servers from one control panel. List TWO (2) access levels and TWO (2) supported daemons under ISPConfig 3.

[2 marks]

C. Apache is the most commonly used Web Server on Linux systems. Web Servers are used to serve Web Pages requested by client computers.

i) Give command using APT in Debian based distros to install Apache2 server.

[1 mark]

ii) Apache2 is configured by placing directives in plain text configuration files. Briefly describe function of `apache2.conf` and `mods-enabled` configuration files.

[1 mark]

Question 3

A. Differentiate a virtualization implementation in Linux distros between KVM, XEN and Qemu.

[3 marks]

B. Using bash scripting, write a simple script that prompt you to input your name, age and sex on screen and then print the output on screen.

[4 marks]

Continued.....

C. Uncomplicated Firewall (`ufw`) is a front-end to `iptables`. Its main goal is to manage your firewall drop-dead simple and to provide an easy-to-use interface.

i) Give a command to enable `ufw` and set the default rules.

[2 marks]

ii) Give a command to allows `ssh` access from host `192.168.0.2` to any IP address on this host.

[1 mark]

Question 4

A. Differentiate between *manual, local automated and remote automated* backup method and identify type of user using it.

[6 marks]

B. Give a `rsync` command and options in one single line that can:

- synchronize the contents of `Directory1` to `Directory2`,
- delete the files in `Directory2` if the files is not available in `Directory1`.

[2 marks]

C. Write a simple backup script that backup `/home/linux` into file `mybackup.tgz` to `/data/backup` folder using tar compression.

[2 marks]

End of Paper